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During a bright aurora the children especially sing to it, sometimes nearly all night, performing a stamping dance, with the fists clenched. The song has many verses, with the same refrain. The first verse, as follows:

“Kiólyā ke! Kiólyā ke!
A yáñā, yáñā, ya!
Hwi, hwi, hwi, hwi!”

EIGHTY-SEVENTH REGULAR MEETING, Dec. 16, 1884.

Major J. W. POWELL, President, in the Chair.

The Secretary of the Council announced the election of Admiral Thornton A. Jenkins, U. S. N., Mr. John Murdock, and Mr. Lucien M. Turner as active members of the Society.

The Curator presented a report showing the receipt of seventy-three gifts, comprising books, papers, and pamphlets, as follows:

GIFTS.

- From the DIRECTOR.—Second Annual Report of the Bureau of Ethnology. 1880–81. Major J. W. Powell. Washington. 1883. Pp. 487. 8°. Illustrations and plates.
- From Mr. GEO. F. BLACK.—British Antiquities; their present treatment and their real claim. By A. Henry Rhind. Edinburgh. 1885. Pp. 47. 8°.
- Notice of a collection of flint implements found in the neighborhood of Fordoun, Cincardineshire. Rev. James Brodie. Pp. 5.
- On certain beliefs and phrases of Shetland Fishermen. Arthur Laurenson. Pp. 6.
- Did the Northmen extirpate the Celtic inhabitants of the Hebrides in the 9th century? Capt. F. W. L. Thomas, R. N. Pp. 35.
- Notice of a collection of flint arrow-heads and bronze and iron relics from the site of an ancient settlement, recently discovered in the Culbin Islands, near Findhorn, Morayshire. Hercules Linton. Pp. 4.
- Notes respecting two bronze shields recently purchased for the museum of the Society, and other bronze shields. Wm. T. McCulloch. Pp. 4.

- From the DIRECTOR.—Notes on Mediæval “Kitchen Middens” recently discovered in the monastery and nunnery on the Island of Iona. John Alexander Smith. Pp. 14.
- Note of a fragment of a Rune-inscribed stone from Aith’s Vol. Cummingsburgh, Shetland. George Stephens. Pp. 6.
- Letter to the Schoolmasters of Scotland, from the Society of Antiquaries. Edinburgh. 1860. Pp. 13.
- Note on a cist, with an urn, discovered at Parkhill, near Aberdeen, in Oct., 1881. Wm. Ferguson. Pp. 4.
- Notes on some stone implements, &c., from Shetland. John Alexander Smith. Pp. 9.
- Notice of the discovery of a massive silver chain of plain double rings or links at Hardwell, Berwickshire. By the Hon. Lord Douglas. With notes of similar silver chains found in Scotland. By John Alex. Smith. Pp. 7.
- Notes on the Antiquities of the Island of Tiree. J. Sand. Pp. 5.
- Notice of a sculptured stone, bearing on one side an inscription in runes, from Kilbar, Island of Barra. Dr. Geo. Stephens. Pp. 4.
- Notice of a Cranium found in a short cist near Silvermoor, Carstairs Lanarkshire. D. R. Rankine. Pp. 3.
- Notice of an underground structure recently discovered on the farm of Mickle Kinord, Aberdeenshire. Rev. J. G. Michie. Pp. 3.
- Notice of shell-mounds at Lossiemouth. E. G. Duff. Pp. 2.
- Notice of urns in the museum that have been found with articles of use or ornament. Joseph Anderson. Pp. 16.
- Notice of a hoard of bronze weapons and other articles found at Monadh-Mor, Killin. Charles Stewart. Pp. 5.
- Notice of a flint arrow-head in the shaft, found in a moss at Fyvie, Aberdeenshire, with notes in illustration of the manufacture of arrow shafts with flint tools. Joseph Anderson. Pp. 6.
- Notes on the character and contents of a large sepulchral cairn of the bronze age at Collessie, Fife, &c. Joseph Anderson. Pp. 23.
- Notes on the contents of shell-heaps recently exposed in the Island of Coll. Donald Ross. Pp. 2.
- Notice of ancient graves at Doudan, near Ballantrae, Ayrshire. John Carrick Moore. Pp. 3.
- Donations to the museum. Francis Abbott. Pp. 3.
- On the presentation of national antiquities and monuments in Denmark. J. J. A. Worsaae. Pp. 15.

- From the DIRECTOR.—Notes of some recent excavations in the Island of Unst, Shetland, and of the collections of stone vessels, implements, etc. Thomas Edmonston. Pp. 5.
- Note of a donation of four sculptured stones from Monifieth, Forfarshire. James Neish. Pp. 8.
- Notes of the sculptured caves near Dysart, in Fife, &c. Miss C. Maclagan. Pp. 14.
- Notice of the discovery of two sculptured stones, with symbols, at Rhynie, Aberdeenshire. Miss C. Maclagan. Pp. 3.
- Notice of excavations in Cannis, in Strathnaver, Sutherlandshire, &c. John Stewart. Pp. 5.
- From Prof. L. STIEDA.—Anthropologische Untersuchungen am Becken lebender Menschen. Paul Schröter. Dorpat. 1884. Pp. 83.
- From the AUTHOR.—H. Fischer. On stone implements in Asia. Worcester, Mass. 1884.
- From the AUTHOR.—Dr. H. F. C. Ten Kate. Quelques observations sur les Indiens Iroquois. Pp. 5. From *Revue d'Anthrop., de Paris*.
- Sur la synonymie ethnique et la Toponymie chez les Indiens de l'Amérique du Nord. Amsterdam. 1884. Pp. 11.
[Reprinted from Trans. Roy. Acad. Sci. Amsterdam.]
- Variétés. Notes sur l'ethnographie des Zuñi. Pp. 3.
- Quelques observations ethnographiques recueillies dans la presqu'île Californienne et en Sonora. Pp. 6.
- Sur Quelques Crânes de l'Arizona et du Nouveau Mexique. Pp. 7.
(Extrait de la *Revue d'Anthropologie*.)
- Matériaux pour servir à l'Anthropologie de la presqu'île Californienne. Paris. 1884. Pp. 19.
[From Bull. Soc. d'Anthrop.]
- From the AUTHOR.—Alph. de Candolle. Hérité de la couleur des yeux dans l'espèce humaine. Geneva. 1884. Pp. 23.
[Ext. Arch. des Sciences Physiques et Naturelles.]
- From the AUTHOR.—Baron Joseph De Baye. Sujets décoratifs au Règne Animal dans l'industrie Gauloise. Paris. 1884. Pp. 8.
[Ext. Mem. Nat. Soc. of Antiquaries of France.]
- From the AUTHOR.—Adrian de Mortillet. Premier décade paléothnologique. Paris. 1881. Pp. 11.
- Deuxième décade paléothnologique. Paris. 1882. Pp. 15.

- From the AUTHOR.—Heinrich Fisher. *Le Précurseur de l'Homme*. 1884. (*L'Homme*, No. 13.)
- Evolution des espèces, évolution des mots. (*L'Homme*, No. 20.) Further remarks on Nephrite. *Verhandl. Berliner Anthrop. Gesellschaft*. 1884. Pp. 2. *Correspondenz-Blatt*. June, 1884. Containing note on a Nephrite Axe, from Brazil.
- From the AUTHOR.—Elmer R. Reynolds. Memoir on the Pre-Columbian shell-mounds at Newburg, Md., and the aboriginal shell-fields of the Potomac and the Wicomico rivers. Copenhagen. 1884. Pp. 22. From *Proc. Cong. Amer. Copenhagen*. 1883.]
- From the AUTHOR.—Juan Ignacio de Armas. *La Tabula de los Caribs*. *Estudios Americanistas*, I. Habana. 1884. Pp. 31. [Read to the Soc. Anthrop. Havana.]
- From the AUTHOR.—Protass Chandra Roy. *The Mahabharata*. Calcutta. Parts 9–11, inclusive.
- From the AUTHOR.—A. B. Meyer. *Ein Zweiter Rohnephritfund in Steiermark*. Vienna. Pp. 12.
- *Über Nephrite und ähnliches Material aus Alaska*. Dresden. 1884. Pp. 21.
- *Ein neuer Fundort von Nephrit in Asien*. Dresden. 1883. Pp. 10.
- *Ueber die namen Papúa, Dajak und Alfuren*. Wien. 1882. Pp. 18.
- *Bemerkungen über Nephrit*. Breslau. Dr. H. Traule. 1884. Pp. 1.
- From the AUTHOR.—Henry Phillips. On a supposed Runic inscription at Farmouth, Nova Scotia. Philada. 1884. [From *Proc. Am. Phil. Soc'y*.]
- From the AUTHOR.—Heinrich Fischer. *Nephritfrage und submarginale (sub cutane) Durchbohrung von Steingeräthen*. Berlin. 1884. Pp. 4. [Verhandl. Berliner Anthrop. Gesellschaft.]
- From the AUTHOR.—C. C. Jones. *The Life and Services of ex-Governor Charles Jones Jenkins*. Memorial Address. Atlanta. 1884. Pp. 56.
- From the AUTHOR.—G. A. Colini. *Osservazioni etnografiche sui Givari*. Rome. 1883. Pp. 47. [From *Royal Lincean Acad.*]
- From the INSTITUTE.—*Transactions of Vassar Brothers' Institute and its Scientific Section*. Poughkeepsie, N. Y. 1883–84. Vol. 2. Pp. 166.
- From the COMMISSION.—*Buletino della Commissione Archæologica Comunale di Roma*. Rome. 1884. Pp. 138.

- From the SOCIETY.—Boletino da Sociedade de Geographia de Lisboa. 1883. 4 ser. Nos. 8, 9.
- From the COMMITTEE.—Mittheilungen des Komite der Geographischen Gesellschaft von Bern. Oct., 1883. Pp. 8.
- From the SOCIETY.—VI. Jahresbericht der Geographischen Gesellschaft von Bern. 1883-84.
- From the INSTITUTE.—Rep. of the Am. Archæol. Institute for 1884, at Boston. Cambridge. 1884.
- From the COMPANY.—Bulletin of the Library Company of Philadelphia, for July, 1884.
- From the SOCIETY.—Bulletins de la Société d'Anthropologie de Paris. Jan.—Mar., 1884.
- Proc. and Coll. Wyoming Hist. and Geol. Soc'y, Wilkes-Barré, Pa. 1858-34.
- The Manuscripts of the Earl of Ashburnham. (Remarks of American Newspapers.) 1884. Pp. 23.
- From the INSTITUTE.—Bulletin of the Essex Institute. Vol. 15. Nos. 1-9, and Vol. 16, Nos. 1-6.
- From the SOCIETY.—Bull. Société de Geographie de Paris. 1, 2, 3 Trimestre. 1884.
- Compte rendu of the Society. Nos. 10-13, 15-17 of 1884.
- Archivio per l'Anthropologia e la Etnologia. Firenze. 1884. XIV. Pt. 2.
- Publications of the Imper. Russian Geograph. Soc. St. Petersburg. 1884. XX. Pts. 2, 4.
- Report Imper. Russ. Geograph. Soc. for 1883. St. Petersburg, 1884.
- Bollettino della Società Geografica Italiana. Roma. 1884. Pts. 1-7, 9-10, inclusive.
- From the MUSEUM.—Sixteenth and Seventeenth Annual Report of the Peabody Museum. 1884. Vol. III. Nos. 3, 4.

On motion of Prof. WARD, the thanks of the Society was voted for these valuable documents.

Mr. W. H. HOLMES read a paper entitled "ORIGIN AND DEVELOPMENT OF FORM AND ORNAMENT IN CERAMIC ART."

ABSTRACT.

The material for this paper was derived chiefly from the native ceramic art of the United States. The advantages of this field, as compared with that of the classic Orient, is apparent when it is remembered that the dawn of that art lies hidden in impenetrable

shadow, while ours is in the light of the very present. The principles involved in this native art are applicable to all times and to all kinds of art, as they are based upon the laws of nature.

Ceramic art presents two classes of phenomena of importance in the study of the evolution of æsthetic culture. These relate, first, to form, and, second, to ornamentation.

Form in clay vessels embraces useful shapes, which may or may not be ornamental, and æsthetic shapes, which are ornamental and may be useful; also grotesque and fanciful shapes, that may or may not be either useful or ornamental. The shapes first assumed by vessels in clay depend upon the shape of the vessels employed at the time of the introduction of the art, and ornament is subject to similar laws.

Form may have three origins: First, adventition or accident; second, imitation of natural and artificial models; third, invention. In the early stages of art the suggestions of accident are often adopted by men, and are thus fruitful sources of improvements and progress. By such means the use of clay was discovered and the ceramic art came into existence. The accidental indentation of a mass of clay by the foot or hand, or by a fruit or stone, while serving as an auxiliary in some simple art, may have suggested the means of making a cup, the simplest form of a vessel.

In time the potter learned to copy both natural and artificial models with facility. The range of models is at first, however, very limited. The primitive artist does not proceed by methods identical with our own. He does not deliberately and freely examine all departments of nature or art and select for models those things most suitable to convenience or agreeable to fancy; neither does he experiment with the view of inventing new forms. What he attempts depends almost absolutely upon what happens to be suggested by preceding forms, and so narrow and so natural are the processes of his mind that, knowing his resources, it would be easy to closely predict his results.

The elements of ornamentation are derived chiefly from two sources—from the suggestions of incidents attending manufacture, and from objects, natural and artificial, associated with the arts. The first articles used by men in their simple arts have had in many cases decorative suggestions. Shells are exquisitely embellished with ribs, spines, nodes, and colors. The same is true to a somewhat limited extent of the hard cases of fruit, seeds, &c. These

decorative features, though not essential to the vessel, are nevertheless an inseparable part of it, and are cast or automatically copied by a very primitive people when similar articles are artificially produced. In this way a vessel acquires ornamental characters long before the workman learns to take pleasure in such details or conceives a desire beyond that of simple utility.

Artificial utensils have a still more decided influence upon ceramic decoration. The constructional features of textile vessels impress themselves upon the plastic clay in manufacture, and in time are repeated and copied for the pleasure they give. The simple ideas of embellishment thus acquired are constantly subject to modification. A single radical gives rise to a multitude of forms. The causes that tend to bring about these results are worthy of the closest study. They may be sought in the material, the form, and above all the constructional characters of the object decorated.

Prof. MASON followed Mr. Holmes with a short *résumé* of Prof. Hartt's theory of the rationale of ornament, published in the Popular Science Monthly, for January, 1884. Prof. Hartt maintains that the explanation of the shape and color of beautiful objects is to be found in the eye itself. We are pleased with certain lines because they bring the muscles of the eye into easy and healthful play.

Prof. MASON said that there was in his mind no conflict between the methods pursued in Mr. Holmes' paper and Hartt's theory—a little differently stated and expanded. Mr. Holmes traces the outline of that natural movement which aboriginal potters had followed. Hartt sought to show the subjective side and how it was that the primitive artist had chosen some forms and rejected others. If we will examine our own handwriting we shall find that the same two sets of facts present themselves. On the one hand we have books, papers, correspondence, copy-books, and many other printed and written things ever before our eyes. On the other hand there is the set of bones, muscles, and sinews, called the hand, with its great variety of lengths, thicknesses, flexibilities, so compounded in each as to give rise to a really individual hand. A man's handwriting is the movement of all these mobile parts in the lines of least resistance for each part, but always in the effort to conform to the pattern.

Now the natural world, with its shells, horns, gourds, carapaces, reeds; the mechanical world, with its shapes in hard material; the

curves and twists of spirals, cycloids, and circles innumerable, are all the patterns of things, the letters, the copy-book. The clay and the potters' tools are pen, ink, and paper. The lines of least resistance are partly in the hand of the potter, indeed, as Mr. Holmes has shown; they are partly in the muscles of the eye, as Mr. Hartt has said; but further back than all this is the force of usage and inheritance.

If we hang a hat intentionally on a peg eleven times, the twelfth time it will hang itself up. This is the universal and beneficent law of the passage of painful voluntariness into semi-automatism which follows the frequent repetition of any act whatsoever. We are pleased with certain muscular movements which have been oft repeated. There is no doubt, therefore, that the eye accustomed to certain outlines, the brain accustomed to certain consecutive impressions, are pleased with that which has become semi-automatic and habitual. We know that such tendencies are strengthened by inheritance, for we have here the application of a universal law of heredity.

Dr. FRANK BAKER said that Hartt seemed in some respects to ignore certain physiological laws in discussing the movements of the eye, and to have too little considered inventive geniuses. The source of art must be sought for in the brain that controls the eye; in the association of nerve cells that prompt the movement of muscles. Taste may follow and accept suggestions from natural forms, but art is not imitative, for, having its source in invention, it gives something nature does not.

Mr. FRANK H. CUSHING said that Hartt apparently did not try to ascertain what the eye might develop, but having certain forms at hand reasoned therefrom. The speaker had found in his studies of ceramic art in the southwest that decoration in basketry had long preceded that of pottery, and that the resulting forms might be generally attributed to adventitious, and taste might have its principal source in the environment.

EIGHTY-EIGHTH REGULAR MEETING, January 6, 1884.

Major J. W. Powell, President, in the Chair.

The Secretary of the Council made the following announcements :

The election of Dr. J. H. Yarnall, as an active member of